Low regularity solution for Chern-Simons-Schrödinger system

Baoping Liu

Abstract.

The Chern-Simons-Schrödinger system arises in physics as a model describing the second-quantized $N$-body anyon problem. Mathematically, it is a gauged planar nonlinear Schrödinger equation. By using the so-called heat gauge, and exploring bilinear estimates in finer scale, we obtain local wellposedness for initial data which is small in $H^s$, for $s > 0$. This is joint work with P. Smith and D. Tataru.